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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Application Number: 10/662,248

Filing Date: September 15, 2003

Appellant(s): CROWLEY ET AL.

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Mark B. Garred  
For Appellant

EXAMINER'S ANSWER

MAILED

OCT 28 2005

GROUP 2800

This is in response to the appeal brief filed 03 Oct. 2005.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

The brief does contain a statement identifying there are no related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *(5) Summary of Claimed Subject Matter***

The summary of claimed subject matter contained in the brief is correct.

**(6) *Grounds of Rejection to be Reviewed on Appeal***

The appellant's statement of the grounds of rejection is correct.

**(7) *Claims Appendix***

The copy of the appealed claims contained in the Appendix to the brief is correct.

#### **(8) Evidence Relyed Upon**

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

5,929,513	Asano	07-1999
6,157,074	Lee	12-2000
6,414,385	Huang et al.	07-2002

#### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

##### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 24-31 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5929513 to Asano et al.

Regarding claim 24, Asano discloses a lead frame 32 in fig. 3A-3C comprising a peripheral tie bar 43, column 5 line 43, and a plurality of leads 33, fig. 3B-C, column 5 line 16, extending from tie bar 43, fig. 3B, in isolation from each other and segregated

into two sets, fig. 3A, the leads of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set, each of the leads defining opposed, generally planar top and bottom sides; an inner end 33a, column 5 line 29, and a notched surface (step portion), which is disposed in opposed relation to the bottom side and extends to the inner end 33a, fig. 3C, each of the leads 33 having a first thickness between the top and bottom sides which exceeds a second thickness between the bottom side and the notched surface, fig. 3C.

Regarding claims 25-27, Asano discloses the lead frame wherein the notched surfaces 33a of the leads 33 extend in generally co-planar relation to each other wherein the bottom sides of the leads extend in generally co-planar relation to each other wherein the top sides of the leads extend in generally co-planar relation to each other, fig. 3C.

Regarding claim 28, Asano discloses a lead frame 32, fig. 3A-C, comprising: a peripheral tie bar 43, and a plurality of leads 33 extending from the tie bar 43 in isolation from each other and segregated into two sets, fig. 3A, the leads 33 of each set being linearly aligned and arranged in spaced, generally parallel relation to each other, fig. 3A, such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set, each of the leads defining opposed, generally planar top and bottom sides; an inner end 33a; and a notched surface (step portion) which is disposed in opposed relation to the top side and extends to the inner end; each of the

leads having a first thickness between the top and bottom sides which exceeds a second thickness between the bottom side and the notched surface, fig. 3C.

Regarding claims 29-31, Asano discloses the lead frame wherein the notched surfaces of the leads extend in generally co-planar relation to each other, wherein the bottom sides of the leads extend in generally co-planar relation to each other, wherein the top sides of the leads extend in generally co-planar relation to each other, fig. 7.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 14-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6157074 to Lee in view of US 6414385 to Huang et al.

Regarding claim 14, Lee discloses a semiconductor package in fig. 7, comprising: a lead frame 1, column 4 line 7, comprising a plurality of leads 6, column 4 lines 15-16, segregated into two sets, fig. 7, the leads of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set, fig. 7, each of the leads defining opposed, generally planar top and bottom sides, a semiconductor chip 3, column 4 line 11, having a top surface and a bottom surface, the bottom surface partially overlapping and attached to the top side of at least one of the leads 6 of each of the sets, the semiconductor chip being electrically connected to a portion of the top side of at least one of the leads 6 which is positioned below the top surface, fig. 7; and a sealing material 13, column 4 line 17, at least partially encapsulating the lead frame 1 and the semiconductor chip 3, the sealing 13 having opposed, generally planar upper and lower surfaces, fig. 7.

But Lee does not disclose the bottom side of each of the lead is generally co-planar with the lower the lower surface of the sealing material.

However, Huang discloses the semiconductor package in fig. 8 wherein the bottom side of each of the lead 326, column 5 line 7, is generally co-planar with the lower the lower surface of the sealing material 332, column 5 line 9. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the co-planar surface teaching of Huang with Lee' device, because it would have allowed further attaching other element such as heat spreader for better heat dissipation as taught by Huang, column 5 lines 31-35.

Regarding claim 15, Lee discloses the semiconductor package wherein: each of the leads 6 further defines an inner end 6 and a notched surface 9, column 4 line 23, which is disposed in opposed relation to the bottom side and extends to the inner end; each of the leads 6 has a first thickness between the top and bottom sides which exceeds a second thickness between the bottom side and the notched surface, and the semiconductor chip 3 partially overlaps and is attached to the notched surface 9 of at least one of the leads 6 of each of the sets, fig. 7.

Regarding claim 16, Lee discloses the semiconductor package wherein the semiconductor chip 3 is electrically connected to the topside of at least one of the leads via a conductive wire 10, column 4 line 34, which is covered by the sealing material 13.

Regarding claims 17-20, Lee discloses the semiconductor package wherein the semiconductor chip 3 is electrically connected to the notched surface 9 of at least one of the leads 6 via a solder ball 5, column 4 line 14, which is covered by the sealing material 13, wherein the notched surfaces 9 of the leads 6 extend in generally co-planar relation to each other, wherein each of the leads further defines an inner end and a notched surface which is disposed in opposed relation to the top side and extends to the inner end 6; and each of the leads has a first thickness between the top and bottom sides which exceeds a second thickness between the top side and the notched surface 9, wherein the semiconductor chip 3 is electrically connected to the top side of at least one of the leads via a conductive wire 10 which is covered by the sealing material 13.

Regarding claims 21-23, Lee discloses the semiconductor package wherein each of the leads 7 further defines an outer end; and the sealing material 13 encapsulates the

lead frame such that the outer end 7 of each of the leads is exposed within the sealing material 13, wherein the bottom sides of the leads 7 extend in generally co-planar relation to each other, wherein the top sides of the leads extend in generally co-planar relation to each other, fig. 7.

#### **(10) Response to Argument**

Appellant's argument filed 03 Oct. 2005 have been fully considered but they are not persuasive. The Appellant argues that

a) Asano leads 33 do not extend in isolation from each other, page 6 in first paragraph. This is not persuasive because the common connecting portion 44 is being removed from the structure, fig. 5 step 2 and column 6 lines 50-51. In the final structure, the leads 33 of Asano do not have the common connecting portion, i.e. in isolation from each other in the final structure; thus it would read on the claim limitations

b) Asano lead frame 32 is not a lead frame due to the removal of portion 44, the lead frame 32 is effectively converted into a portion of a semiconductor package subassembly, page 6 in second paragraph, the combination of lead frame and heat spreader 35, page 7 in first paragraph, and that the preamble 'breathes life into the claims', page 7 in last paragraph. This is not persuasive because Asano explicitly discloses 32 is a LEADFRAME, col. 5 line 15.

Removing connecting portion 44 of Asano does not change or alter the LEAD FRAME structure 32 that would result in a different structure from the structure of

the claimed invention. Thus, the Examiner submits that the lead frame 32 of Asano would read on the claim language.

With respect to 'the combination of lead frame and heat spreader', the Applicant does not have any limitation in the claim language in order to exclude such combination. In addition, adding the heat spreader to the lead frame again does not change the fundamental structure of the LEAD FRAME itself; therefore the lead frame 32 would read on the claim language.

With respect to 'preamble', a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

c) The Applicant argues that the leads 33 are not linearly aligned and arranged in spaced, generally parallel relation to each other due to the leads 33 are being bent at different angles, page 9 in first paragraph, and the leads as a whole, and not just portions of the lead, page 10 in first paragraph. This is not persuasive because the Examiner submits that either the inner portions 33a or the outer lead portion 34 of the leads 33 are linearly aligned and arranged in spaced, generally parallel relation to each other, as in fig. 2A and top view of fig.

3B below. The claim language does not require entire length of the lead being generally parallel; thus a portion 33a would read on the claim limitations.

FIG. 2A

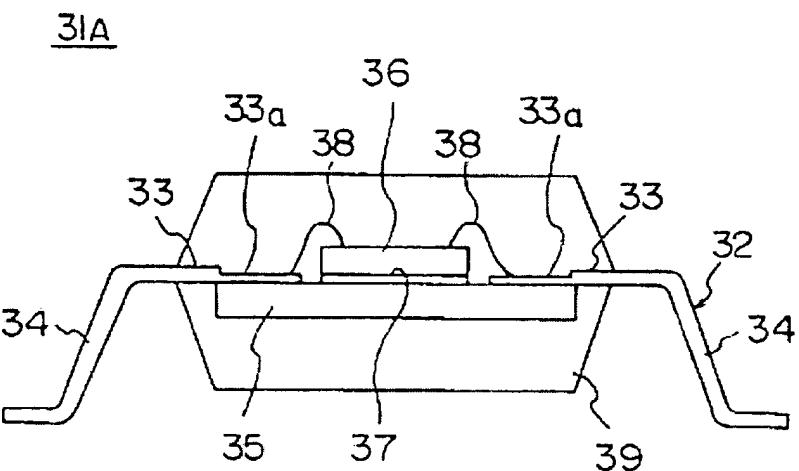
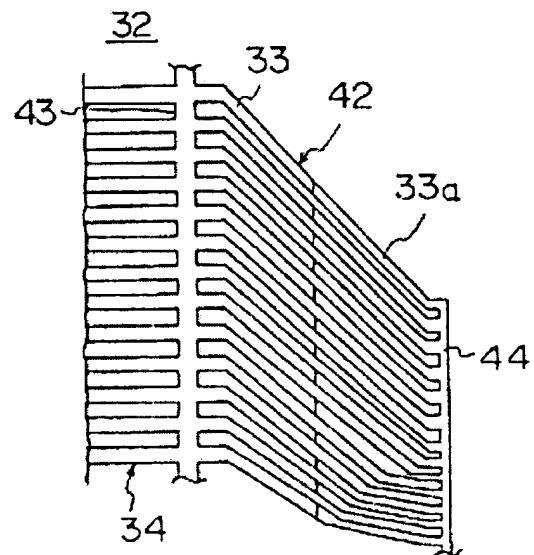


FIG. 3B



As it is shown in the fig. 3B the either the outer portion 34 or inner lead portion 33a is linearly aligned and arranged in spaced, generally parallel relation to each other.

With respect to 'the leads as a whole', it is noted that the feature upon which the Applicant relies upon, the leads as a whole, are not recited in the rejected claim. Although the claim are interpreted in light of the specification, limitation from the specification are not read into the claim, see *In re Van Geuns*, 988 F.22d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, it is proper to use the specification to interpret what the applicant meant by a word or phase recited in the claim. However, it is not proper to read the limitations appearing in the specification into the claim when these limitations are not recited in the claim; *Intervet America Inc. v. Kee-Vet Lab. Inc*, 887 F.2d 1050, 1053, 12 USPQ2d 1474, 1476 (Fed. Cir. 1989). It is the claims, not specification that are anticipated or unpatentable. In *Constant v. Advanced Micro Device Inc.* 7 USPQ2d 1064. Therefore, Applicant cannot read limitation only set forth in the description into the claim for the purpose of avoiding the prior art. *In re. Sporck*, 386 F. 2d 924,155 USPQ 687 (CCPA 1967)

d) The Applicant argues that leads 6 of Lee are not extend in spaced, generally parallel relation to each other. Instead, the inner leads 6 of each set are bent at different angles, and are clearly not parallel, page 14 in first paragraph, and claim the leads as a whole, and not just portions of the leads, page 14 in last

paragraph. This is not persuasive because the Examiner submits that either the inner lead 6 or the outer leads 7 of Lee are linearly aligned and arranged in spaced, generally parallel relation to each other, as shown in fig. 7 and top view of fig. 5 below. The claim language does not require entire length of the lead being generally parallel; thus an either lead 6 and 7 would read on the claim limitations.

FIG. 5

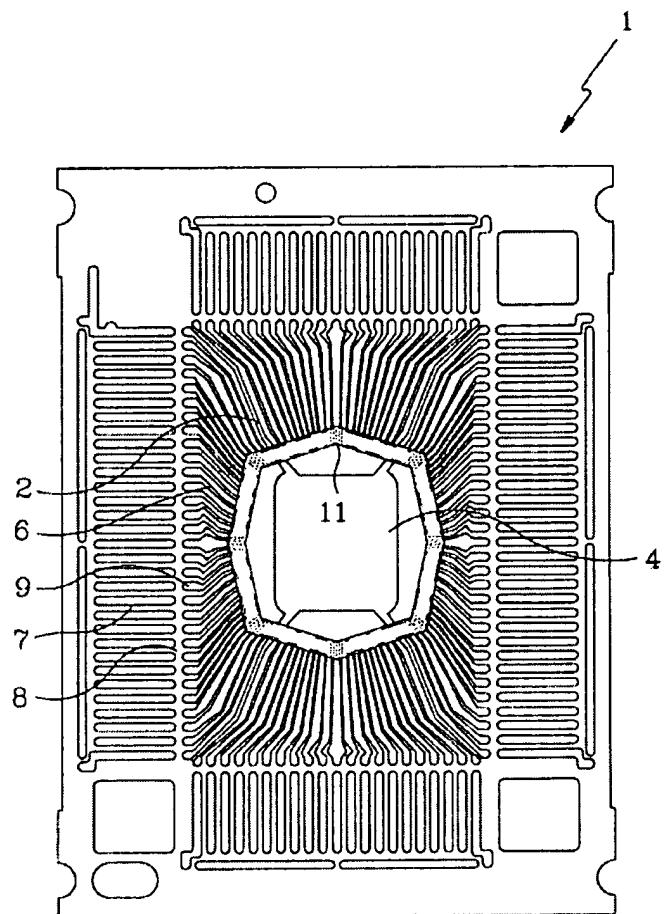
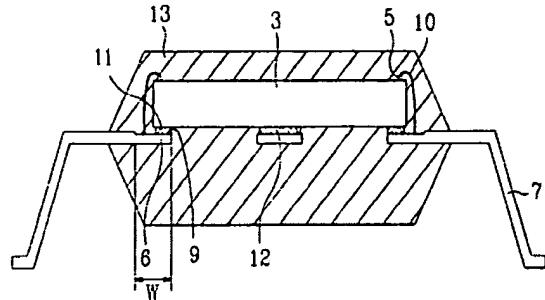


FIG. 7



As it is shown in the fig. 5 and 7, either the outer lead 7 or the inner lead 6 is linearly aligned and arranged in spaced, generally parallel relation to each other.

With respect to 'the leads as a whole', see discussion in the above item c).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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October 21, 2005

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